

according to the prior art. The electronic device **30** can be a laptop computer or the like, and the input device **36** can be a touch pad used to control functions of the device **30**, such as moving a cursor, making selections, etc. The touch pad **36** is positioned on a housing **32** of the device **30** in conjunction with conventional components of a keyboard **38** and other physical inputs. The touch pad **36** can be categorized as either “resistive” or “capacitive.” In the resistive category, the touch pad **36** is coated with a thin metallic electrically conductive layer and a resistive layer. When the touch pad **36** is touched, the conductive layers come into contact through the resistive layer causing a change in resistance (typically measured as a change in current) that is used to identify where on the touch pad **36** the touch event occurred. In the capacitive category, a first set of conductive traces run in a first direction on the touch pad **36** and are insulated by a dielectric insulator from a second set of conductive traces running in a second direction (generally orthogonal to the first direction) on the touch pad **36**. The grid formed by the overlapping conductive traces creates an array of capacitors that can store electrical charge. When an object (e.g., a user’s finger) is brought into proximity or contact with the touch pad **36**, the capacitance of the capacitors at that location changes. This change can then be used to identify the location of the touch event.

[0010] In yet another example, **FIG. 2C** illustrates an electronic device **40** having a touch screen display **44** according to the prior art as an input device. The electronic device **40** is a Personal Digital Assistant or the like. The touch screen display **44** is positioned on a housing **42**, and the electronic device **40** typically has some physical controls **46** on the housing **42**. A stylus **48** is used to touch locations of the touch screen display **44** to perform various functions. The stylus **48** is typically used like a mouse and arrow, and the display **44** can show various menu items and other user interface features. Touching a menu item on the display **44** with the stylus **48** can generate a pop-up or window **45** in which the user can then make a selection with the stylus **48**. The pop-ups or windows **45** overlay the content being displayed and tend to obscure it.

[0011] Recently, traditionally separate hand-held electronic devices have begun to be combined in limited ways. For example, the functionalities of a telephone have been combined with the functionalities of a PDA. One problem that has been encountered is in the way inputs are made into the device. Each of these devices has a particular set of input mechanisms or devices for providing inputs into the device. Some of these input mechanisms are generic to all the devices (e.g., power button) while others are not. The ones that are not generic are typically dedicated to a particular functionality of the device. By way of example, PDAs typically include a touch screen and a few dedicated buttons while cell phones typically include a numeric keypad and at least two dedicated buttons.

[0012] Thus, it is a challenge to design a device with limited input mechanisms without adversely affecting the numerous possible functions that the device can perform. As will be appreciated, it is preferable not to overload the electronic devices with a large number of input mechanisms as this tends to confuse the user and to take up valuable space, i.e., “real estate.” In the case of hand-held devices, space is at a premium because of their small size. At some point, there is not enough space on the device to house all

the necessary buttons and switches, etc. This is especially true when considering that all these devices need a display that typically takes up a large amount of space on its own. To increase the number of input devices beyond some level, designers would have to decrease the size of the display. However, this will often leave a negative impression on the user because the user typically desires the largest display possible. Alternatively, to accommodate more input devices designers may opt to increase the size of the device. This, too, will often leave a negative impression on a user because it would make one-handed operations difficult, and at some point, the size of the device becomes so large that it is no longer considered a hand-held device.

[0013] Therefore, what is needed in the art is an improved user interface that works for multi-functional hand-held devices.

SUMMARY OF THE DISCLOSURE

[0014] An electronic device has a display and has a touch sensitive bezel surrounding the display. Areas on the bezel are designated for controls used to operate the electronic device. Visual guides corresponding to the controls are displayed on the display adjacent the areas of the bezel designated for the controls. Touch data is generated by the bezel when a user touches an area of the bezel. The device determines which of the controls has been selected based on which designated area is associated with the touch data from the bezel. The device then initiates the determined control. The device can also have a sensor for determining the orientation of the device. Based on the orientation, the device can alter the areas designated on the bezel for the controls and can alter the location of the visual guides for the display so that they match the altered areas on the bezel if the orientation of the device has changed.

[0015] The foregoing summary is not intended to summarize each potential embodiment or every aspect of the present disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] The foregoing summary, preferred embodiments, and other aspects of subject matter of the present disclosure will be best understood with reference to a detailed description of specific embodiments, which follows, when read in conjunction with the accompanying drawings, in which:

[0017] **FIGS. 1A-1F** are diagrams of various electronic devices according to the prior art.

[0018] **FIG. 2A** illustrates an electronic device having a display and user controls according to the prior art.

[0019] **FIG. 2B** illustrates an electronic device having a display and a touch pad according to the prior art.

[0020] **FIG. 2C** illustrates an electronic device having a touch screen display according to the prior art.

[0021] **FIG. 3A** is a perspective view of a substantially full screen hand-held device with a limited number of buttons according to certain teachings of the present disclosure.

[0022] **FIG. 3B** is a front view of the hand-held device of **FIG. 3A** with at least one button.